National Climate Assessment

U.S. Global Change Research Program

Indicators Development and Evaluation

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Indicator Vision: Critical for the Sustained Process

Part of the vision for the sustained National Climate Assessment (NCA) process is a system of physical, ecological, and societal indicators that communicate key aspects of the physical climate, climate impacts, vulnerabilities, and preparedness for the purpose of informing both decision makers and the public with scientifically valid information that is useful for decision-making. These indicators will be tracked as a part of ongoing assessment activities, with adjustments as necessary to adapt to changing conditions and understanding. The indicators will be reviewed and updated so that the system adapts to new information.

The goals for the NCA indicators are to:

- provide meaningful, authoritative climate-relevant measures about the status, rates, and trends of key physical, ecological, and societal variables and values to inform decisions on management, research, and education at regional to national scales;
- identify climate-related conditions and impacts to help develop effective mitigation and adaptation measures; and
- provide analytical tools by which user communities can derive their own indicators for particular purposes

Design Criteria

The NCA indicator system will be designed to address questions important to multiple audiences including (but not limited to) non-scientists (e.g., Congress, U.S. citizens, students), resource managers, and state and municipal planners in a conceptually unified framework.

The NCA indicator system will include both *current* indicators and *leading* indicators.

- Current indicators describe current status and trends relative to a historical baseline.
- Leading indicators are used to project changes in important parameters that could result from possible climate changes.

The NCA indicators will be scalable, so that they can be presented as a national aggregate, where appropriate, and also provide information for indicators at state, regional, and local scales.

- No single scale or aggregation method needs to be imposed for all indicators.

The indicators chosen for the NCA indicator system will build on or augment existing efforts when possible.

- The NCA indicators will not replace existing, successful operational for research systems of indicators.

The NCA indicators will comply with the transparency and scientific merit guidance developed by the Knowledge Management Working Group and approved by the NCADAC

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The Process of Establishing the NCA Indicator System

The development and deployment of the NCA indicators will engage stakeholders, both producers and users, in a two-way conversation from development to testing to implementation to evaluation.

Stakeholders will be identified from institutions that both use and produce information – for example, federal agencies, state and local government, private sector, NGOs, academic institutions.

The process of developing NCA indicators will start with important climate-relevant questions. Examples of such questions, might include:

- How do we know that climate is changing and how is climate projected to change in the future?
- What important climate impacts and opportunities are occurring or are predicted to occur in the future?
- How are we preparing for rapid change or extreme events related to climate?
- How are we adapting and mitigating over longer time frames?
- What are our fundamental vulnerabilities and resiliencies to climate variability and change?

The intent of this process is to enable users of the indicator system to address questions that are important to them about preparedness, adaptation, and mitigation.

A prototype set of indicators will be developed and discussed with stakeholders, both users and producers, to establish priorities for implementation.

The NCA indicators should be evaluated and modified as necessary.

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